

ABSTRACT OF THE DISCLOSURE

The present invention discloses a method for microelectrogravimetrically depositing an electroactive species onto an electrode or a plurality of electrodes. The method comprises dispensing a solution containing the electroactive species from a microdispenser so as to form a hanging drop of the solution. The method further comprises contacting the electrode with the hanging drop of the solution, wherein the electrode is electrically coupled with the microdispenser so as to form an electrochemical cell, and applying a potential to the electrochemical cell. The application of the potential effects deposition of the electroactive species onto the electrode. The method of the invention eliminates the need for immersion of the electrode in a bath, reduces the volume of solution required by a factor of at least 10-100, and avoids uneven depletion of various components of the solution over successive applications. The method reduces costs, provides for increased reproducibility in the plating process and avoids contamination of the solution. Because of the direct placement of solution onto the electrode and greater control over the deposition as a consequence of current density, a smaller amount of stabilizing protein is required, resulting in greater activity and reduced plating times. The method is particularly suited for plating of enzymes, such as glucose oxidase, or metals, such as platinum, onto electrodes for use as biosensors.

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